An hematopoietic stem-cell-based approach to treat HIV employing CAR T cells and anti-HIV broadly neutralizing antibodies.

Grant Award Details

An hematopoietic stem-cell-based approach to treat HIV employing CAR T cells and anti-HIV broadly neutralizing antibodies.

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-13510

Investigator:

Name:	Brian Lawson
Institution:	The Scintillon Institute
Type:	PI

Award Value: $1,143,600

Status: Pre-Active

Grant Application Details

Application Title: An hematopoietic stem-cell-based approach to treat HIV employing CAR T cells and anti-HIV broadly neutralizing antibodies.

Public Abstract:

Research Objective

We propose to transduce hematopoietic stem cells with vectors that encode chimeric antigen receptors targeting HIV for T cells and anti-HIV broadly neutralizing antibodies for B and/or plasma cells.

Impact

Recent methods are limited by the rise of escape mutants against a single CAR. Our approach solves this issue by the ability to express multiple CARs and multiple secreted bnAbs concurrently.

Major Proposed Activities

- HSC vector construction and evaluation.
- Determine whether populations of dual HSCs are effective at controlling HIV-associated viremia and reducing the proviral reservoir.

Statement of Benefit to California:	HIV is a devastating viral disease that affects over 140,000 Californians and well over a million Americans. Though antiretroviral therapies have significantly reduced the severity and transmissibility of the disease, a cure still remains elusive and anti-HIV drugs need to be administered for life. These drugs have been associated with significant toxicity. If the studies proposed here are effective in animal models and then translate to humans, a cure is envisioned.

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